

1. (Not Currently Amended) A method for processing an ink discharge port of an ink jet head provided with discharge ports for discharging ink, the discharge ports being provided on a discharge port plate, the method comprising the steps of:

closely contacting a mask plate having openings corresponding to the discharge ports with a face of the discharge port plate on an ink discharge side; and forming the discharge port on the discharge port plate by irradiating plural high energy ultraviolet beams simultaneously through the mask plate so that the beams are inclined with respect to a vertical axis that is perpendicular to the mask plate, wherein the formed discharge port has a shape that widens in a direction away from a source of the beams.

2. (Twice Amended) The method for processing the ink discharge port of the ink jet head according to Claim 1, wherein the plural high energy ultraviolet beams are incident upon the mask plate so that the beams are inclined at a same angle with respect to the vertical axis of the mask plate.

3. (Twice Amended) The method for processing the ink discharge port of the ink jet head according to Claim 1, wherein the plural high energy ultraviolet beams are incident upon the mask plate in directions that are equally divided with respect to a circumference of a circle about the vertical axis in the plane of the mask plate.

5. (Twice Amended) The method for processing the ink discharge port of the ink jet head according to Claim 1, wherein the high energy ultraviolet beams are formed by four beams, and each of the four beams is inclined with respect to the vertical axis of the mask plate, and incident upon the mask plate in directions that are equally divided with respect to a circumference of a circle about the vertical axis in the plane of the mask plate, and wherein the directions form an angle of 45° with respect to an axis along the arrangement direction of the discharge ports.

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6. (Not Currently Amended) A method for manufacturing an ink jet head provided with discharge ports for discharging ink and a discharge port plate having the discharge ports, the method comprising the steps of:

closely contacting a mask plate having openings corresponding to the discharge ports with a face of the discharge port plate on an ink discharge side; and

forming a discharge port on the discharge port plate by irradiating plural high energy ultraviolet beams simultaneously through the mask plate so that the beams are inclined with respect to a vertical axis that is perpendicular to the mask plate,

wherein the formed discharge port has a shape that widens in a direction away from a source of the beams.

7. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein said discharge port formation step is performed after the discharge port plate is bonded to the ink jet head main body.

8. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the plural high energy ultraviolet beams are incident upon the mask plate so that the beams are inclined at a same angle with respect to the vertical axis of the mask plate.

9. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the plural high energy ultraviolet beams are incident upon the mask plate in directions that are equally divided with respect to a circumference of a circle about the vertical axis in the plane of the mask plate.

10. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the high energy ultraviolet beams are formed by two beams, and each of the beams is inclined symmetrically with respect to the vertical axis of the mask plate, and incident upon the mask plate in a direction at right angles to an axis along the arrangement direction of the discharge ports.

11. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the high energy ultraviolet beams are formed by four beams, and each of the beams is inclined with respect to the vertical axis of the mask plate, and incident upon the mask plate in directions that are equally divided with respect to a circumference of a circle about the vertical axis in the plane of the mask plate, and wherein

the directions form an angle of 45° with respect to an axis along the arrangement direction of the discharge ports.

12. (Twice Amended) The method for manufacturing the ink jet head according to Claim 11, wherein the ink jet head is provided with ink flow paths connected with the ink discharge ports, each ink flow path having a rectangular section, and each discharge port being arranged on an end portion of a corresponding ink flow path.

13. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the discharge port plate is formed of resin.

14. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the discharge port plate is formed of silicon nitride.

15. (Twice Amended) The method for manufacturing the ink jet head according to Claim 6, wherein the high energy ultraviolet beams are formed by a higher harmonic wave of an excimer laser or a YAG laser.

REMARKS

This application has been reviewed in light of the Office Action dated April 10, 2002. Claims 1-3 and 5-15 are presented for examination. Claims 2, 3, 5 and 7-15 have been amended to attend to formal matters. The changes made are not intended, or